POWER

A McGRAW-HILL PUBLICATION DEVOTED TO GENERATION, TRANSMISSION AND APPLICATION OF THE POWER SERVICES

GENERAL INDEX
To
VOLUME 92

January-December, 1948

McGRAW-HILL PUBLISHING CO., INC.
330 West 42nd Street
New York 18, N. Y.

	Pages
January	1- 67
February	68-132
March	134-198
April	199-263
May	264-328
June	329-386
MID-JUNE BUYERS' GUIDE	
July	388-450
August	451-516
September	517-581
October	583-667
November	669-733
December	735-815

A

ACCIDENT AND ACCIDENT PREVENTION

Save stress on boiler drums by planned operation. F. X. Gilg *474
Yard pipeline crossing promotes safety. Elton Sterrett *364

AIR COMPRESSORS

Clock-controlled valves drain compressed-air system. M. A. Jubin *110
Electropneumatic system clears coal jamming. T. G. Hicks *713
Plug-type cap holds shaft sleeve in place. J. B. Thurman *307
Revolution counter meters the compressor air output. N. Formby *643

AIR CONDITIONING

Ansley Hotel, Ga., air conditioning installation presents unusual problems. F. A. Ketterson *140
Burdines, Fort Lauderdale, Fla. uses unit air conditioners cooled by water from central system. T. W. Reynolds *526
Cincinnati hotel atop department store calls for special handling of air conditioning. H. C. Hoffman *393
Fit the air-conditioning system to the load. J. D. Constance pt 1 *18 pt 2 *72
American Institute of Electrical Engineers Technical briefs 568
American Society of Mechanical Engineers Technical briefs *440, 499
American Society of Testing Materials Technical briefs 568
Anthracite Conference Technical briefs 499

ATOMIC ENERGY

The atom job—is it being done? (Ed) 263
Power reports—where America stands in 1948. Robert Colborn *264

AUSTRALIA

Sydney power station of modern design *32

B

BEARINGS

For top-notch diesel operation know your sleeve-bearing fundamentals *22
Modern bearing materials meet tough demands of diesel service conditions *78
Belts. Arc of contact factors (Power's Data Sheets) 504
Stopping belt slippage on flywheel. Govan, Squires, Griffel, Belton, Hicks, Greiner, Elliott, Wyborn, Butcher, Holman *46

BOILERS

Accumulator helps carry peak load. J. B. Thuman *432
American Linen Supply Co. finds well-planned boiler plant pays big dividends. R. F. Combs *452
Blackhawk Station of Wisconsin Power & Light increases capacity by new one-boiler-per-turbine unit. L. M. Abrahamson *330
Burning coal on overfed stokers. Rowley, McCabe & Skrotzki *762
Burning coal on underfeed stokers. Rowley, McCabe & Skrotzki *768
Burning pulverized coal. Rowley, McCabe & Skrotzki *753
Calculate continuous blowdown rate from chloride concentrations. J. F. Hyam (Power's Data Sheets) 567
Canada Packers' St. Boniface plant burns lignite at efficiencies to 79%. G. E. Gibson *550
Coal feeder regulated by shock absorber. D. H. McKay *111
Cut smoke by proper jet application. Rowley & McCabe *676
Expanding boiler tubes. J. R. Brown *712
Fraser Companies, Ltd, paper mill eliminates old boilers and superimposes power generators on system. W. P. London *388
Heat-saver system. Kraus, Belton, Govan, Hicks *715
How overfire jets can be made to cut smoke. Rowley & McCabe *532
Installing waste-heat boiler increases gas-turbine flexibility. G. R. Fusner *421
Internal conditions of old boilers guide water treatment for new units, U. S. Industrial Chemicals. Welsh, Rivers & Kilduff *542
correction 693
Make your furnace-design specifications work for you. N. J. Connors *300
Melchers Distilleries—oil-fired plant built on site of coal-fired one. J. A. Kearns *4
Metropolitan Edison in Middletown, Pa. new topring turbine served by high-pressure boilers. T. Y. Mullen *670
Pre-ignition grate for burning brown coal on traveling grate stokers *52
Proper hand firing makes no smoke. Rowley & McCabe *456
Save stress on boiler drums by planned operation. F. X. Gilg *474
Scale in boilers cleaned by air-jet motor. L. B. Whitlow *712
Scale in boilers and superheaters dissolved by hydrogen-zeolite treated water. Webb & Yoder *35
Sectionalized furnace for steam generation from wood refuse *52
Silica removed by a sludge-blanket hot-process softener. Yoder, Carbonnier & Morris *399
Steel-mill boilers designed for blast-furnace gas. W. M. Cline, Jr. *350
Standard Oil of Indiana stretches refinery steam by topping units. Monro & Milbrook pt 1 *154 pt 2 *234
Support has unusual defect *184
Thermocouples detect high ash level in closed precipitator hopper. G. Holubeck *243
Tips for pneumatic ash conveying. Eugene Fahn *352
3600-rpm fluid drives adjust feed-pump speed to boiler load. J. D. Rosebrough *12
Type of firing equipment used with industrial boilers recently ordered 611
Underfed stokers are meant to operate smoke-free. Rowley & McCabe *284
Want your overfed stoker to be smokefree? Rowley & McCabe *158
Way to remove ash siftings. Appleton, Thuman, Govan, Strojsor, Ciordano, Butcher, Hicks, Belton, Oppenheim *366
What causes slag to build up? *273
Buyers' Guide—Directory of Manufacturers Mid-June issue

C

CANADA

Canada Packers' St. Boniface plant burns lignite at efficiencies to 79%. G. E. Gibson *550
Fraser Companies, Ltd. modernizes plant with eye toward future expansion. W. P. London *388
Fraser Companies' plant removes troublesome coloring matter in feedwater by treatment. W. P. London *480
Hydro development 192a
Melchers Distilleries—new boiler plant design features. J. A. Kearns *4
Checker (poem) 548

CHIMNEYS

Bridge-like truss supports stack breeching. J. J. Welch *364

CHINA

Plan to relieve power shortage by 1953 186

COAL

Braddock Light & Power's Station C has extensive coal storage facilities *589
Burning coal on underfeed stokers. Rowley, McCabe & Skrotzki *768
Burning coal on overfeed stokers. Rowley, McCabe & Skrotzki *762
Burning pulverized coal. Rowley, McCabe & Skrotzki *753
The coal crew (poem) 482
Coal fields of the U. S. (map) 744
Consumption by various industries 1947 373
Electropneumatic system clears coal jamming. T. G. Hicks *713
Gasoline from coal developments 374
Granby Consolidated Mining, Smelting & Power Co. burns lignite and discarded slack coal. A. R. Eastcott *276
How to figure unburned carbon. H. Richardson (chart) 651
Magnetic separators remove tramp iron from coal. R. F. Merwin *168
1943 estimate of coal reserves 377
Progress in underground gasification of coal 570
Specimen analyses of typical coals (table) 746
What part does pulverized coal firing play in air pollution? Rowley & McCabe *14

COMBUSTION

Burning gas and oil. Rowley, McCabe & Skrotzki *748
How to figure combustion. Rowley, McCabe & Skrotski *778
Make your furnace-design specifications work for you. N. J. Connors *300
Underfeed stokers are meant to operate smoke-free. Rowley & McCabe *284
Want your overfeed stoker to be smokefree? Rowley & McCabe *158
What part does pulverized coal firing play in air pollution? Rowley & McCabe *14

CONDENSERS

Fluorescent dye detects small leaks quickly. D. E. Hornbeck 174
How Talleyrand's condenser operating experience varied over the years. Bostwick, Cassidey & Hancock *685
Oiling condensers prevent corrosion. H. L. Jones 713
Rockland Light & Power has condenser that travels on trailers *783a
Rotary vacuum pumps for condenser air-removal service. W. C. Woodman *470

CONTROLS

Automatic alarm board helps busy operators. J. C. Porter *242
Automatic feeding of woodwaste replaces hand firing, saves fuel. Harry Panning *396
Electronic control for dc motors. G. W. Heumann *703
Hydro-pneumatic tanks made more efficient by controls. W. L. West (charts) *529
Liquid rheostat gives smooth speed control. G. I. McFarland *280
Pacific Gas & Electric's Station P-extension designed for quick pick-up *586
Purchased power held under control aids process plant. F. O. Wallene *688
3600-rpm fluid drives adjust feed-pump speed to boiler load. J. D. Rosebrough *12
Ward-Leonard system assures exact speed control for dc motors. Henry Oman *546
Working model simplifies theory of automatic control. G. F. Akins pt 1 *536 pt 2 *694
Controls see also Instruments
Cooling towers—Texas Electric Service installs outdoor station *598
Why does one cooling tower take more air? Weisenbach, Govan, Livingston, Hicks, Schaeffer, Bachman, Wenig, Belton, Demling, Holman *112

COSTS AND PERFORMANCE

Canada Packers' St. Boniface plant burns lignite at efficiencies to 79%. G. E. Gibson. *550
Capacitors improve pf and cut costs. J. S. Williams. *785
Grand Haven diesel plant brings capacity to 13,370 hp by extension. J. B. Sims *462
Oklahoma's 3500-kw gas turbine raises station capability by 6000-kw. Blake & Tumy *518
Standardization of industrial steam turbines is coming. L. E. Newman *143
Tacoma, Wash. redevelops old hydro projection Nisqually River by installing 80,000-kw more capacity *268
U. S. Industrial Chemical modernizes their Custis Bay, Md. power plant *68
Directory of Manufacturers—Mid-Year Buyers' Guide Mid-June issue
Drawing board fixed with strips. T. E. Miller *307

E

Edwards, George—A lesson in advancement 317
A resolve for 1948 121
Wealth is a flow, not a fund 187
When is a mistake not a mistake? 442

ELECTRICITY

Automatic electrical-fire protection. S. G. Freck *477
Calculating slipring-motor resistance. Butcher, Coulden, Hoffman, Kraus, Hicks, Kelley, Fladby, Holman, von Dannenberg *244
Can I turn down a squirrel-cage rotor? St. Laurent, Anderson, Hicks, Norman, Hoffman, von Dannenberg, Roberts, Coulden, Warner *176
Capacitors improve pf and cut costs. J. S. Williams *785
Checking for phase reversal. Sparks, Jones, Anderson, Butcher, Hoffman, Roberts, Demere, Van Herk *559
Circuit protection. J. J. O'Connor *403-418

(*) Illustrated. (Ed.) Editorial.

Page

Crimp lugs speed transformer repair. K. B. Hoffman *541
Electrical power demand continues growth rate 804
Electronic control for dc motors. G. W. Heumann *703
Electronics for the power engineer. F. A. Annett
pt 1 the electron in electron tubes *239
pt 2 electron flow in conductors *303
pt 3 elements of electron tubes *361
pt 4 tube types in everyday use *429
pt 5 photoelectric tubes *493
pt 6 photoelectric tubes *554
pt 7 self-induction and mutual induction *709
pt 8 reactors and transformers *791
General Electric's new plant at Coshocton, Ohio, for plastics production *33
Ground halts generator phase test. E. J. Kelley *699
How to press-fit a large rotor on its shaft. N. L. Rea *335
Improve the load power factor. W. C. Bloomquist (Power's Data Sheets) (chart) 719
Inductive kick checks motor compounding. Max Pafenbach *433
Liquid rheostat gives smooth speed control. G. L. McFarland *280
Outdoor motor protected by sheet-metal housing. M. H. Pearce *175
Parallel operation of ac generators. E. J. Kekkey *465
Press-fitting rotors on their shafts by heating. N. L. Rea *682
Speed of motor driving a fan increased *44
Synchronous speeds of electrical machines. John Hyam (Power's Data Sheets) *183
3600-rpm fluid drives adjust feed-pump speed to boiler load. J. D. Rosebrough *12
Turbine-generator exciters keep pace with increased operation. C. Lynn *8
Ward-Leonard system assures exact speed control for dc motors. Henry Oman *546
Water-cooled battery charging speeds process *795
Water rheostat loads generators for testing. J. L. King *110
What the synchroscope does and how it works. James Wilson *146
Wooden sticks serve as an expendable clutch. F. E. Coe 242
Elevators—frequency of elevator rope resocketing. Hicks, Spencer, Bryan, Summer, Parmer *796

ENGINES—DIESEL AND GAS

Diesel engines—brief *646
Grand Haven diesel plant brings capacity to 13,370 hp by extension. J. B. Sims *462
How gas engines serve today's steel mills. W. M. Cline, Jr. *38
Hydro, diesel and steam in unique combination, serve Salt River Valley *354
Know your sleeve-bearing fundamentals for top-notch diesel operation *22
Locomotive 4800-hp gas turbine on trial runs *295
Modern bearing materials meet tough demands of diesel service conditions *78
Modern diesel engines—50 years of progress. L. N. Rowley *199-230
Plan for extensions in power-plant designs. Elton Sterrett *45
Radial engines for aluminum works *419
Recirculating cooling system improves engine operation. D. F. Bixler *794

ENGINES—STEAM

Compression rings extend steam-piston life. J. B. Murphy *306
How to stop pound in a Corliss engine. Hicks, Murphy, Helmer, Govan, Kilbourn, Kraus, Wilkes, Melville, Belton *438
Shock absorber smooths governor operation. D. J. Brenton *558
Engines—walking beam
Old timer engine *34

EQUIPMENT

Buyers' Guide Mid-June issue
Adapter, paint-can 728c
Air compressor *322a, *564, 716
Air conditioner 808b
Air Conditioner, packaged 654
Air-filter 665a
Air trap 376
Air vents, automatic *322c
Alarm, electric 729a
Alarm, liquid-level 368
Amplifier, Dc 60b
Annunciator, portable-visual *448b
Appliance plug holder 565
Backstop, shaft 376
Ballast, lamp 182
Barrel and drum tilt 190b
Battery charger, M-G 381a
Bearings, gridded 50
Bearings, Linear ball bearing 190b
Bearings, roller, take-up 728b
Belting, conveyor, fabric 729b
Belting, rubber-toothed 125a
Bending bar *510c
Bending machine *448a

Page

Blow torch, gas-electric 728c
Boiler control 48
Boiler, package 180, 181, 368
Boiler, portable 561
Boiler-return units 799
Boiler, three-fuel 659a
Boiler, watertube 809b
Brake, magnetic 809c
Burner, dual-fuel 665a
Cabinet, instrument 649
Cable reel 660b
Cable wrap *573c
Calculator, lighting 661c
Caliper, vernier *448a
Capacitor, distribution 323c
Capacitor, motor 662b
Car door operator 60a
Cement, abrasive 565
Chemical feeder 380c
Circuit breaker 48
Circuit breaker, air 181
Circuit breaker, oil 370, 654, *664a
Clamp, armature 728c
Cleaner, deodorizing 510c
Cleaner, flue 566
Cleaner, steam 662b
Cleaner, thread 654
Cleaners, tube 729b, *574a
Cleaning—parts cleaner 247
Cleaning set 125a
Clutch, air compressor 717
Clutch, centrifugal 661a
Clutches, over-center 565
Clutch, overrunning 571
Coal cleaner 504
Coating, protective 248, 368
Coating, refactory 257b
Coils, heating and cooling 662a
Compound, sealing 716
Compressing tool *448c
Compression fittings 370
Compressor 562
Compressor, freon 247
Compressors, reciprocating 311
Computer, electrical 725c
Condensate returns 650
Condensate system 126b
Condenser, gas *435
Conductor cell 125a
Connector, electrical 650
Connector, solderless 511b
Connector, solderless wire *504
Connector, wire, solderless 660a
Contactor, high current 247
Contactor, reversing 718
Contactors, solenoid *311
Control 717
Control, amplidyne 190c
Control, center, motor *503
Control, combustion 381a
Control, crane 502
Control, dual-fuel-engine *648
Control, electronic 561
Control, electronic relay *563
Control, electronic speed 114
Control lighting 660c
Control, pump 654
Control, safety, oil burner *447a
Control, overfire-jet 799
Control, temperature 662a, 725b
Controller, automatic 716
Controller, motor 810b
Controller, oil-burner *312
Conveyor-belt fastener 810a
Conveyor elevator 257a
Conveyor, trough 573b
Conveyor with magnets 380b
Cooler, compressed-air 180
Cooling tower 114, 369
Couplings, flexible 60c, 810a
Coupling, hydraulic *434
Coupling, quick-disconnect 126a
Coupling, quick-soldered *566
Coupling, split 729a
Coupling, trip-proof 115
Cooling tower *564
Crane control 312
Crane, hydraulic 181
Crane, hydraulic-operated 809a
Crane, portable 574a
Cutters, hand-powered 318
Cylinder opener *502
Damper control 247
Diaphragm head *436
Diaphragm, regulator 435
Deoiler *435
Diesel starter 191a
Differential, synchronous 654
Drainer, condensate 49
Drill kit, masonry *323a
Drive, hydro-sheave 799
Drive, variable-speed *565
Drives, worm-gear 718
Drying agent 718
Electrical bus, enclosed *434
Electrode 503, 725b, 799
Electrode, bronze 811c
Electrode, hard-surfacing 381c, 664b
Electrode, nickel 811c
Electrode, nonferrous 808a
Electrode, welding 247, 256b, 257a, 257b 376, 380a, 381a, 718
Elevator, bucket *511b

Page

Elevator, fluid-drive 48
Engine, diesel 717, 725c, 798
Engine, diesel electric plant 726a
Engines, diesel, horizontal *310
Engine, diesel, industrial 653
Engines—fuel attachment 246
Extension bar 503
Extension cord, portable *311
Fans, axial flow 49
Fans, centrifugal 811a
Fan, DXB Booster 115
Fan, utility 116
Feed oiler, gravity *574b
Feeders, stoker *312
Feeder, vibrating 248, *318
Filter 126a
Filter, airline 435
Fire pot, tinner's 448c
Fittings, malleable brazed 114
Flame failure device 664b
Floodlight, general purpose *571
Floor outlet 125b
Fluorescent fixture 248
Fuel additive 436
Furnace observation door 662a
Furnace walls 660a
Fuse, time lag *503
Gage, chemical 798
Gage dial, vacuum 562
Gages, gear 726c
Gage glass guard *574c
Gages, pressure 115
Gas analyzer 573c
Gas burner safeguard 564
Gate operator, portable 116
Gear Speed Reducer 811c
Gears, worm, enclosed 811c
Gearmotor, vertical 310
Generator, air powered 660c
Generator, gas *502
Generator, hot water 808a
Generator sets, diesel 800
Generator set, engine 256c
Generator set, motor 660a
Generator, steam 661c
Generator, synchronous 653
Gloves, welding 447c
Goggles, safety 510c
Gum solvent 124c
Gun, metalizing 381b
Hand ointment 125c
Heater, deaerating *562
Heater, electric 246
Heater, immersion 447b
Heater, space 798
Heater, unit 247, 650, 728b
Heater, wall 311
Heater, water 368
Heating coils 257b
Hoist, electric 60c
Holder, lamp, adjustable 727b
Hopper, self-dumping 370
Humidifier, industrial *323c
Humidifier unit 311
Humidity indicator 49
Hydraulic unit, midget *323a
Hydroelectric unit *447c
Indicator, bin level *573a
Indicator, CO_2 653
Indicator, excess-smoke 191a
Indicator, flow 50, 246
Indicator, level 318
Indicator, phase-rotation 116
Indicator, phase sequence *434, 728a
Indicator, pressure 718
Indicator, smoke 369
Indicator, temperature *322a, 376, *447c
Indicator, tin-content 729b
Indicator, water-level 653
Insulation, electrical 648
Insulation, wire 664a
Jack, heavy duty 126a
Jack, hoist 60b
Joint, expansion 126c, 368
Joint, rotary pressure 501
Lamp capacitor 318
Lamp, fluorescent 811c
Lamp, reflector 510c
Leak detector 370
Lifter, twin-barrel 256b
Lighting, emergency portable *502
Lighting plant, portable 727c
Lining, brake shoe 436
Lubricant, dry 716
Lubricant, multi-purpose grease 717
Magnets, plate 312
Magnet, heavy-duty 572c
Material handling 716
Material stacker *322b
Metal worker, universal *312
Meter, air 376
Meter, Gauss *504
Meter, thermal demand 501
Meter, vibration 809c
Meter, watthour *571
Moisture remover 573c
Motors, air starting 650
Motor, capacitor 180, 181
Motor, chemical 727a
Motor, enclosed 368, 809c
Motor, explosionproof 791
Motor, miniature *569
Motor, oil-well 798

(*) Illustrated. (Ed.) Editorial.

Page

Motor, sanitary *564
Motor, series mill 728a
Motor, synchronous 649
Motor, textile 574a
Motor, wound-rotor 311, 726b
Motoreducer, all-steel 800
Motorgear Reducer 811b
Nozzle, fire 563
Nuts, wing 376
Oil-burner control 256a
Oil burner 664a
Oil, diesel lube 727c
Oil filter, proportional 48
Oil flusher *511a
Oil, flushing, for turbines 572c
Oil, heavy duty 503
Oiler, automatic 434, 662a
Oiler, gravity feed 810b
Oiler, unbreakable 257a
Oscillograph, automatic 125b
Packing, valve 182
Paint 665a
Paints, flat 182
Paint, industrial 510c
Paint-spray gun *323b
Panel, Thermocouple 653
Panel instruments *501
Panelboard, oil 811b
Panelboard, plug-in 115, 573b
Pilot light, oil tight *504
Pilot, pressure 574a
Pipe bender 717
Pipe cleaner 436
Pipe cutter *502
Pipe fittings *564
Piping, insulated 448c
Piston rings 653
Plumbing fixtures 369
Positioner *504
Potentiometer, portable 562
Power unit, fluid 380b
Power unit, hydraulic 60c, 727b
Power unit, industrial *435
Pressure indicator element 723
Pump, axial-flow *561
Pump, centrifugal 717
Pump, chemical-feed 809b
Pump, circulating 723
Pump, condensate return 571
Pump drive, vertical *563
Pump, drum *664b
Pump, fuel-injection 659a
Pumps, gearless 50
Pumps, helical-rotor *574c
Pumps, high-pressure 190c
Pump, jet 800
Pulley lagging 649
Puller, lightweight 256a, 381c
Pumps, lightweight *310
Pulley, magnetic 653
Pump packings 311
Pump, portable 810a
Pumps, proportioning *434
Pump, rotary 380c
Pumps, rotary, gear 48
Pump, rotary hand 650
Pump, turbine 808c
Pump, turbine-type 718
Pumps, vertical feed 380a
Pumping units, well *562
Purifier 660b
Pyrometer *566
Pyrometer, proportioning 729b
Pyrometer, radiation 310
Recorder, AC voltage 115
Recorder, dewpoint 49
Recorder, multi-pen 808b
Recorder, oxygen *318
Recorder, position 116
Rectifier, regulated 649
Rectifier, oil-immersed 664c
Rectifier, selenium 650, 809a
Refractories 665a
Refrigeration 649
Regulator, atmospheric 126c
Regulators, combustion 573b
Regulator, compressor 312
Regulator, diaphragm 728c
Regulator, temperature *562
Regulator, voltage 502, 716, 809b
Relay, Dc *563
Relay, heavy duty *503
Relay, medium power 501
Relays, mercury 811a
Relay, multi-contact 182
Relay, time delay *436
Relay, transformer load 727a
Roofing sheet 571
Rope, wire, nylon coated *661b
Repair shop, portable *318
Resin, cation-exchange 574b
Resistors *322b
Resurfacer, floor 248
Rust preventive 368, 717
Safety-Lamp Changer 810a
Scale, meter 723
Scraper, paint 323c
Soot remover 728b
Separators, magnet-pulley *323b
Shaft seal 566
Sheave, adjustable 662b
Sheaves, adjustable-pitch *562
Sheaves, V-belt 180

Page

Sheaves, variable-pitch 125c
Sight glass 381b
Slide rule, piping 369
Smoke recorder 661a
Snubbers, pressure 182
Soap dispenser 124c
Solder 126a
Speed controller 125c
Speed reducer, motorized 571
Spotlight, industrial 312
Spray gun, Mogulelectric 116
Sprinkler, ceiling *504
Stabilizers, voltage *664c
Starters, engine air 649
Starter, magnetic 654, 723, 810c
Starter, motor *435
Steam trap 247
Stoker, automatic 50
Stoker, spreader 561
Storage Battery 723
Strainer 376
Strainer, pipeline 126b
Stud extractor 381c
Switch, float 368
Switch, mercury 661c
Switch, motor-starting 248
Switch, precision snap 370
Switch, pressure 247, *565
Switch, time *566
Switches, starting 726c
Steam trap 717, 800
Steam trap, small 808c
Switchboard instruments *436
Synchronizing system 799
Tachometer 50
Temperature instrument 435
Template *448a
Template, flexible 727a
Test leads 368
Test plug, relay 726b
Tester 114
Testing tube 116
Testing unit, lube-oil *661b
Thermometer 808c
Thermometer, adjustable 369
Thermometer, dial 182, 310
Thread compound 50, 312
Timer, electronic interval *448b
Timer, manual reset 504
Timer, pneumatic 659c
Torch, carbon arc 381b
Torch, cutting 322c
Torch—general 248
Torch, welding 369
Transformer, air-cooled *563
Transformer, current 246
Transformer, distribution 50, 811a
Transformer, lighting 563
Transformer, load-center 369
Transformer, network 574c
Transformers, phase-shifting 182
Transformer, power 729a
Transformer release 114
Transmission, hydraulic 49
Transmission, variable-speed 800
Transmitter, pneumatic 124c
Transmitter, sound 728b
Trap, steam 181
Tube cleaner 182, *572c
Tube, condenser 368
Tube cutter 256c
Tube expanders 810c
Tubes, finned 50
Tube, flow 650
Tubing, flexible 124c, *436
Turbine, all-weather 799
Turbine, mechanical drive *501
Turboblowers 664c
Treading tool 376
Troughing idler, adjustable 318
Unit heater 561
V-belts, nylon 573c
Vacuum cleaner 248
Valves, adjustable port 716
Valve, ball 114
Valve, blowdown 650
Valve, butterfly 256b
Valve calculator 447a
Valve compressor control 115
Valve, control 256c
Valve, foot-operated 370
Valves, forged steel 573a
Valve, gas, magnetic *566
Valve, gate 48, 115, *565
Valves, high pressure *434, 798
Valve, hose 248
Valves, lubricated 49
Valve, lubricator 726c
Valves, multi-way 126a
Valves, needle 649
Valve, packless *447b
Valve, plug 574b
Valve, regulating 318
Valves, relief *501
Valve, safety and relief 246
Valves, selector 50
Valve, shutoff *571
Valve, solenoid 126c, 808a
Valves, steel gate 800
Valve, swing check 180
Ventilator, portable 246
Ventilator, window 661a
Vibration dampener *511a

Page

Vibrator, vertical 257b
Voltage stabilizer *561
Voltage tester 24
Voltmeter, electrostatic 659
Water purifier 31
Water softener 322
Water treatment 79
Wattmeter, light-beam 65
Wattmeter, recording *56
Welder 71
Welder, arc 561, 80
Welder, electric 11
Welder, portable 126c, *56
Welding electrode 18
Welding flux 126
Welding rod 126b, 648, 654, 716, 80
Wire cutter, plier and stripper 12
Wire stapling gun 65
Wire stripper 71
Wire, thermocouple 37
Wrench, impact 18
Wrench, pipe 311, 727

F

Fans—How to draw fan scrolls on layouts. T. G. Hicks *643

FEEDWATER

Aspirators reduce Co_2 in makeup water. Dalton White *557
Calculate continuous blowdown rate from chloride concentration. J. F. Hyam (Power's Data Sheets) 567
Charts simplify chemical dosage for treating boiler feedwater. W. D. Turner *347
Existing tank provides needed storage. K. M. White *365
Feedwater chemistry conversions. J. F. Hyam (Power's Data Sheets) *313
How Talleyrand's condenser operating experience varied over the years. Bostwick, Cassidey & Hancock *685
Hydrogen-zeolite treated water dissolves boiler, superheated scale. Webb & Yoder *35
Internal conditions of old boilers guide water treatment for new units, U. S. Industrial Chemicals. Welsh, Rivers & Kilduff *542
correction 693
Rid water of dissolved gas to stop corrosion. R. C. Ulmer *491
Silicon removed by a sludge-blanket hot-process softener. Yoder, Carbonnier & Morris *399
Surface water made fit for boilers. A. L. Wilson *283
Total raw-water hardness from ionic analysis. J. F. Hyam (Power's Data Sheets) *371
Treatment removes troublesome coloring matter. W. P. London *480
Water conditioning with sodium sulphite. J. F. Hyam (Power's Data Sheets) *801
Why inorganic materials precipitate. Dr. R. C. Ulmer *233

Flyash—see Smoke abatement

FIRE PROTECTION

Automatic electrical-fire protection. S. G. Freck *477
Carbon tetrachloride ok in proper extinguisher. B. C. Hutchins 375
Floods—Bulkheads seal against floods *349

FOREWORD

The atom job—is it being done? 263
Bright power future 329
Go see for yourself 63
'Handbook engineer' 517
It takes only two 67
The new engineering education 451
Power for peace and war 387
Wanted: a program 133
New construction program 259a

FUEL

Burning gas and oil. Rowley, McCabe & Skrotzki *748
Canada Packers' St. Boniface plant burns lignite at efficiencies to 79%. G. E. Gibson *550
Facts about fuels. Rowley, McCabe & Skrotzki *741
Fuels and firing—special section *735-782
Granby Consolidated Mining, Smelting & Power Co. burns lignite and discarded slack coal. A. R. Eastcott *276
How fuels burn. Rowley, McCabe & Skrotzki *736
Papers reviewed from Midwest Power Conference and from Oil Heat Institute of America 372
Selecting fuel for new plants and old. Rowley, McCabe & Skrotzki *774
Steel Co of Canada has new boiler plant designed to handle steel-mill fields *612
Steel-mill boilers designed for blast-furnace gas. W. M. Cline, Jr. *350

(*) Illustrated. (Ed.) Editorial.

Page

U. S. Industrial Chemicals equips whole plant to use one fuel and saved *68
Wood waste automatically fed, instead of hand-fired, saves fuel. Harry Panning *396
Fuel—see also Coal, Gas, Natural Gas, Oil

G

GAS
Major gas fields and pipelines (map) 742
Great Britain—Gas turbines to be installed in gunboats 259a
London plans first oil-fired central station in Britain. H. J. Randall *789

H

Heat balance—How gas engines serve today's steel mills. W. M. Cline * 38

HEATING AND VENTILATING
Cincinnati hotel atop department store calls for special handling of air conditioning. E. C. Hoffman *393
How to determine reliable air-flow data for design of duct systems. A. H. Korn *30
New York Steam Corp. generates additional electricity economically due to steam demands. M. J. Steinberg *297
Refrigerated room floors need heat. A. W. Ruff *291
Rid water of dissolved gas to stop corrosion. R. C. Ulmer *491

HIGH PRESSURES AND TEMPERATURES
Mansfield Tire & Rubber's oiler plant extension designed for possible h-p operation *622
Michigan State College—new power plants deliver steam at higher pressure *624
Steel-mill boilers designed for blast-furnace gas. W. M. Cline, Jr. *350
Telltales for pressure vessels 74
Texas Co.—Eagle Point Works supplied by high-pressure plant of efficient layout *616
Horsepower—Engine indicated horsepower. F. M. Giordano (Power's Data Sheets) *117

I

India—Power program 259

INSPECTION AND MAINTENANCE
Bulkheads seal against floods *349
Card file keeps track of equipment maintenance. S. Martinez, Jr. *558
Consider the operator's viewpoint when designing generating stations. J. H. Drake *102
Crimp lugs speed transformer repair. K. B. Hoffman *541
Establish adequate maintenance program for industrial turbines. Alf Hansen *26
Expanding boiler tubes. J. R. Brown *712
Fluorescent dye detects small leaks quickly. D. E. Hornbeck 174
Guide for plant operator in preparing new turbine oil system *691
Harbor Steam Plant of City of Los Angeles saves pump casings by welding. Carl Barlow *340
How to do milling work with a lathe. M. G. Moore *307
How to patch tracing paper. William Kagan *175
How to press-fit a large rotor on its shaft. N. L. Rea *335
Lifting rig prevents marring turbine spindle *496
Log sheets enable quick record keeping. D. M. Smith *243
Meters—clean out nipples without shutting down the main. E. Podmayer *495
Motor and pump repairs go hand in hand. M. H. Kinsinger *238
Nylon brushes clean condenser tubes *432
Plug-type cap holds shaft sleeve in place. J. B. Thurman *307
Press-fitting rotors on their shafts by heating. N. L. Rea *682
Preventive maintenance requires firm scheduling. O. L. Applegate *674
Puller bars safely remove pistons and heads. J. F. Maher *794
Rebuilding blades salvages old steam turbine. W. L. Larson *364
Scale in boilers cleaned by air-jet motor. L. B. Whitlow *712
Sheet-metal housing protects outdoor motor. M. H. Pearce *175
Steam turbine's bearing pedestal cracks mended with simple tools. A. R. Eastcott *153
Talleyrand Generating Station's condenser operating experience varied over the years. Bostwick, Cassidey & Hancock *685
Telltales for pressure vessels 74

INSTRUMENTS
Automatic switch controls alarm circuit. D. L. Gusler *642

Page

Meters—clean out nipples without shutting down the main. E. Podmayer *495
Revolution counter meters the compressor air output. N. Formby *643
Sampling box simplifies testing. Elton Sterrett *713
Sediment trap improves performance of regulating and recording instruments. Elton Sterrett *795
Thermocouples detect high ash level in closed precipitator hopper. G. Holubeck *243
What the synchroscope does and how it works. James Wilson *146
Instruments—see also Controls
Insulation—Quick way to find economical insulation thickness (tables) *478
Waterside Station, Consolidated Edison, finds insulation of 46 years ago in good condition *549

L

LOCOMOTIVES
4800-hp gas turbine designed for locomotives on trial runs *295

LUBRICATION
Continuous walkway saves climbing. Elton Sterrett *433
Grooved ring stops oil leakage along shaft. D. Wijsman *795
Guide for plant operator in preparing new turbine oil system *691
How to avoid costly shutdowns through correct lubrication. A. C. Skooglund *105
Lubricating the diesel. F. A. Annett *222
Oiling condensers prevent corrosion. H. L. Jones 713

M

Manufacturers Directory—Mid-Year Buyers' Guide Mid-June issue

MARINE
Floating power plant adds capacity to Jacksonville system and new station adds too. Herbert McClammy *288
San Diego Naval Operating Base ships supplied with power services at piers. Nickian & Lewis *488

MATERIALS HANDLING EQUIPMENT
Conveyor—automatic switch controls alarm circuit. D. L. Gusler *642
Magnetic separators remove tramp iron from coal. H. F. Merwin *168
Tips for pneumatic ash conveying. Eugene Hahn *352

MATHEMATICS
Figuring triangles. D. E. Brainard 375
McGraw, James H. founder of McGraw-Hill Publishing Co. 1860-1948 dies *231
Midwest Power Conference—Papers reviewed from conference 372
Technical briefs 499, 568
Models—Dayton Power & Light's Hutchings Station model *232
Working model simplifies theory of automatic control. G. F. Akins pt 1 *536 pt 2 *694

MODERNIZATION
Fraser Companies, Ltd. modernizes plant with eye toward future expansion. W. P. London *388
Pullman Standard Car Manufacturing expands and modernizes Chicago plant *620
Sorg Paper Co. modernizes plant with rebuilt steam turbines. Suhs & McArthur *75
U. S. Industrial Chemical modernizes their Curtis Bay, Md. power plant *68

N

National Association of Power Engineers—Educational program 61b
National District Heating Assn.—Technical briefs 568
Natural Gas—Conference on nitrogen removal from natural gas 722
Four tanks made effective gas drier. M. H. Pearce *306

O

Oil—London plans first oil-fired central station in Britain. H. J. Randall *789
Major oil fields and pipelines (map) 743
Oil Heat Institute of America—Papers reviewed from annual meeting 372

P

PIPING
How to determine reliable air-flow data for design of duct systems. A. H. Korn *30
How to insulate steam-traced piping effectively *433

Page

Piping collars have advantages. F. M. Giordano *111
Plan for extensions in power-plant designs. Elton Sterrett *45
Rid water of dissolved gas to stop corrosion. R. C. Ulmer *491
Sampling box simplifies testing. Elton Sterrett *713
Series orifices reduce pipe erosion. Albert Lea *174
Shortcut to making pipe elbow developments. Hans Schmidbauer *496
Slip joints prevent expansion troubles. Elton Sterrett *642
Steam line leaks eliminated for oil tank. J. R. Brown *557
Waterside Station, Consolidated Edison, finds insulation of 46 years ago in good condition *549
Yard pipeline crossing promotes safety. Elton Sterrett *364
"Power"—Editorial staff changes *443
Historical summary 59b
Power factor—Power factor calculations made easy. G. Oldroyd *167

POWER PLANTS—STEAM
American Linen Supply Co. finds well-planned boiler plant pays big dividends. R. F. Combs *452
Bethlehem Steel boilers designed for blast-furnace gas. W. M. Cline, Jr. *350
Blackhawk Station of Wisconsin Power & Light increases capacity by new one-boiler-per-turbine unit. L. M. Abrahamson *330
Braddock Light & Power's Station C—strictly unit construction *589
Carborundum Co. extends and modernizes steam facilities *626
Central station trends (charts) 584
Consider the operator's viewpoint when designing generating station. J. H. Drake *102
Dayton Power & Light's Hutchings Station model *232
Fraser Companies, Ltd. modernizes plant with eye toward future expansion. W. P. London *388
Fraser Companies, Ltd. removes troublesome coloring matter in feedwater by treatment. W. F. London *480
General Electric's new plant at Coshocton, Ohio, for plastics production *33
Granby Consolidated Mining, Smelting & Power Co. burns lignite and discarded slack coal. A. R. Eastcott *276
Guymon Station, Okla. takes on load. L. L. Nunley *483
Harbor Steam Plant of City of Los Angeles saves pump casings by welding. Carl Barlow *340
Hydro, diesel and steam, in unique combination, serve Salt River Valley *354
Industrial power trends—steam generating facilities dominate expansion programs (charts) 610
Interstate Power's Lansing Station yields good performance with carefully worked out design *595
Jacksonville, Fla. municipal system plans 60,000-kw station. Herbert McClammy *288
London plans first oil-fired central station in Britain. H. J. Randall *789
Mansfield Tire & Rubber's boiler plant extension designed for possible h-p operation *622
Melchers Distilleries, Canada, new boiler plant design features. J. A. Kearns *4
Metropolitan Edison in Middletown, Pa. new topping turbine served by high-pressure boilers. T. Y. Mullen *670
Michigan State College new power plants connects to old one across river *624
New York Steam Corp. generates additional electricity economically due to steam demands. M. J. Steinberg *297
1948 design survey of typical industrial and institutional power plants: 200 psi or above (table) 628
1948 design survey of typical industrial and institutional power plants: below 200 psi (table) 632
1948 listing of typical central-station and municipal power plants (table) 604
1948 modern plant survey 583
Norton Co. expands power service facilities with 50,000 lb per hr unit *618
Oklahoma Gas & Electric's Beerbower Station adds 25,000 kw *592
Oklahoma Gas & Electric raises Arthur S. Huey Station capacity with gas turbine. Blake & Tumy *518
Pacific Gas & Electric's Station P—extension designed for quick pick-up *586
Philadelphia Electric expands Barbadoes Station to meet growing demand *784
Probability theory helps determine system reserve generating capacity. Giuseppe Calabrese *423
Public Service Electric & Gas' Essex Station has a cond 1000F unit in U.S. rated 100,000 kw *601
Pullman Standard Car Manufacturing expands and modernizes Chicago plant *620
Sorg Paper Co. modernizes plant with rebuilt steam turbines. Suhs & McArthur *75

(*) Illustrated. (Ed.) Editorial.

Page

Southwark Station, Philadelphia, design features use of house turbines. Pettit & Myers. *134
Springs Cotton Mills—modern process-power installation serves bleachery-division operations *614
Standard Oil of Indiana stretches refinery steam by topping units. Monro & Milbrook pt 1 *154 pt 2 *234
Steel Co. of Canada—new boiler plant designed to handle steel-mill fuels *612
Steel mill power 479
Sydney, Australia, power station of modern design *32
Talleyrand Generating Station's condenser operating experience varied over the years. Bostwick, Cassidey & Hancock *685
Texas Co.—Eagle Point Works supplied by high-pressure plant of efficient layout *616
Texas Electric Service installs outdoor station *598
Union Bag & Paper Corp. removes silica from boilers in a sludge-blanket hot-process softener. Yoder, Carbonnier & Morris *399
U. S. Industrial Chemicals modernizes their Curtis Bay, Md. power plant *68
U. S. Industrial Chemicals modernizes with specially designed water treatment plant. Welsh, Rivers & Kilduff *542
U. S. Industrial Chemicals steam capacity *375
Weyerhaeuser Timber Co. replaces hand firing of wood waste with automatic feeding. Harry Panning *396

POWER SERVICES

American Linen Supply Co. finds well-planned boiler plant pays big dividends. R. F. Combs *452
Carborundum Co. extends and modernizes steam facilities *626
General Electric's new plant at Coshocton, Ohio, for plastics production *33
Mansfield Tire & Rubber revamping power services for higher output *622
Melchers Distilleries—new boiler plant design features. J. A. Kearns *4
New York Steam Corp. generates additional electricity economically due to steam demands. M. J. Steinberg *297
Norton Co. expands its power plant to keep ahead of growing process and power needs *618
Purchased power held under control aids process plant. F. O. Wallene *688
San Diego Naval Operating Base ships supplied with power services at Piers. Nickian & Lewis *488
Saving steam from curing cylinders. Mullen, Fontaine, Graham, Winget, Thurman, Hoffman, Belton, Demling, Butcher, Wenig, Webber, Porter, Hicks, Yavitch *308
Service. R. S. Clark (poem) 700
Springs Cotton Mills—modern process-power installation serves bleachery-division operations *614
Standard Oil of Indiana stretches refinery steam by topping units. Monro & Milbrook pt 1 *154 pt 2 *254
Texas Co.—Eagle Point Works supplied with both process and power steam from gas or oil-fired units *616
When to use steam turbines for mechanical drive. F. S. Kohl pt 1 *338 pt 2 *427

POWER TRANSMISSION

Apply right gear to the job to get longer service. J. K. Rewalt *344
How to select the most economical V-belt drive. F. H. Rumble *787
Industrial-power clutches. F. A. Annett *83

POWER'S DATA SHEETS

Arc of contact factors 504
Calculate continuous blowdown rate from chloride concentrations. J. F. Hyam 567
Engine indicated horsepower. F. M. Giordano *117
Feedwater chemistry conversions. J. F. Hyam *313
Figuring refrigeration capacity. John Hyam *51
Improve the load power factor. W. C. Bloomquist (chart) 719
Synchronous speeds of electrical machines. John Hyam *183
Total raw-water hardness from ionic analysis. J. F. Hyam *371
Universal tank-capacity scales. W. H. Wieboldt *437
Water conditioning with sodium sulphite. J. F. Hyam *801

PUBLIC UTILITIES

Blackhawk Station of Wisconsin Power & Light increases capacity by new one-boiler-per-turbine unit. L. M. Abrahamson *330
Braddock Light & Power's Station C—strictly unit construction *589
Central station trends (charts) 594
Dayton Power & Light's Hutchings Station model *232
Guymon Station, Okla. takes on load L. L. Nunley *483
Interstate Power's Lansing Station yields good performance with carefully worked out design *595
Jacksonville, Fla. municipal system plans 60,000-kw station Herbert McClammy *288

Page

1948 listing of typical central-station and municipal power plants (table) 604
Oklahoma Gas & Electric's Beerbower Station adds 25,000 kw *592
Oklahoma Gas & Electric raises Arthur S Huey Station capacity with gas turbine Blake & Tumy *518
Pacific Gas & Electric's Station P—extension designed for quick pick-up *586
Philadelphia Electric expands Barbadoes Station to meet growing demand *784
Probability theory helps determine system reserve generating capacity Giuseppe Calabrese *423
Public Service Electric & Gas's Essex Station has second 1000F unit in U. S. rated 100,000 kw *601
Southwark Station, Philadelphia, design features use of house turbines Pettit & Myers. *134
Talleyrand Generating Station's condenser operating experience varied over the years Bostwick, Cassidey & Hancock *685
Texas Electric Service installs outdoor station. *598
Waterside Station, Consolidated Edison, finds insulation of 46 years ago in good condition *549

PUMPS

Adjustable vanes match pumps to operating requirements A J Stepanoff *162
Compression rings extend steam-piston life J. B. Murphy *306
Emergency pump repair uses concrete E. A. Roberts *643
Hydraulically driven booster pump allows elevated plant location *44
Motor and pump repairs go hand in hand M. H. Kinsinger *238
Rotary or steam-jet air pumps? W. C. Woodman *470
Suction submergence controls condensate-pump discharge Pio Nardone *680
Troubles with steam pump Avant, Hermer, Constance, Griffel, Holman, Ray, Belton, Parmer, Kilcer, Hicks, Butcher, O'Brien, White, Strojsa, Butler, Livingston, Hawarth, Dovenar *644
3600-rpm fluid drives adjust feed-pump speed to boiler load J. D. Rosebrough *12
Vertical turbine pumps W. C. Mumford pt 1 *41 pt 2 *108 pt 3 *171
Welding saves costly pump casings at Harbor Steam Plant of City of Los Angeles Carl Barlow *340

R

REFRIGERATION

Figuring refrigeration capacity John Hyam *51
Freezing-room floors need heat A. W. Ruff *291
How to spot refrigerating troubles George Holman *492
Liquefied helium develops new low temperature 170
Research—Westinghouse Laboratory speeds gas-turbine progress *99
Russia—First vertical turbine at Khramges 259a

S

SMOKE ABATEMENT

Cut smoke by proper jet application. Rowley & McCabe *676
How overfire jets can be made to cut smoke. Rowley & McCabe *532
Proper hand firing makes no smoke. Rowley & McCabe *456
Underfeed stokers are meant to operate smoke free. Rowley & McCabe *284
Want your overfeed stoker to be smokefree? Rowley & McCabe *158
What part does pulverized coal firing play in air pollution. Rowley & McCabe *14
Standardization—Industrial steam turbine standardization is coming. L. E. Newman *143
Sweden—Waterwheels operate 100 years. George Willock *165
Switzerland—20,000-kw hp gas turbine underway *157

T

TANKS AND STANDPIPES

Controls make hydro-pneumatic tanks more efficient. W. L. West (charts) *529
Read water level from pressure gage. J. D. Constance *495
Steam line leaks eliminated for oil tank. J. R. Brown *557
Underground waterproof concrete tank. Kraus, Constance, Livingston, Butcher, Hicks, Porter, Cunningham *497
Universal tank-capacity scales. W. W. Wieboldt (Power's Data Sheets) *437
Tidal power—Tide power still holds interest in England 120

TURBINES—DIESEL AND GAS

Gas turbine as a means of securing additional output of power. W. Karrer *118

Page

Installing waste-heat boiler increases gas-turbine flexibility. G. R. Fusner *421
M.I.T. sets up gas-turbine lab. 21
1350-F 2000-hp gas turbine runs on test stand for over 1000 hours. T. J. Putz *150
Oklahoma Gas & Electric raises Arthur S. Huey Station capacity with gas turbine. Blake & Tumy *518
20,000-kw hp gas turbine under way in Switzerland *157
Westinghouse Laboratory speeds gas-turbine progress *99
Turbine, mercury—Scale model of new mercury turbine *120

TURBINES—STEAM

Bearing pedestal cracks mended with simple tools. A. R. Eastcott *153
Blackhawk Station of Wisconsin Power & Light increases capacity by new one-boiler-per-turbine unit. L. M. Abrahamson *350
Establish adequate maintenance program for industrial turbines. Alf Hansen *26
High fuel costs revive reheating. C. W. Bloedorn *485
Metropolitan Edison in Middletown, Pa. new topping turbine served by high-pressure boilers. T. Y. Mullen *670
Pacific Gas & Electric's Station P—extension designed for quick pick-up *586
Rebuilding blades salvages old steam turbine. W. L. Larson *364
Rebuilt steam turbines modernize this twenty-year old paper plant. Suhs & McArthur *75
Southwark Station, Philadelphia, design features use of house turbines. Pettit & Myers *134
Standardization of industrial steam turbines is coming. L. E. Newman *143
Turbine-generator exciters keep pace with increased operation. C. Lynn *8
When to use steam turbines for mechanical drive. F. S. Kohl pt 1 *338 pt 2 *427 pt 3 *706

U

United States of America—The strength of America. David Lilienthal *1

V

VALVES

Clock-controlled valves drain compressed-air valves. M. A. Rubin *110
Muffing deaerator vent is boon to operators. R. N. White *365
Valve-tap brace prevents breakage. M. H. Pearce *111

W

WATER POWER

Grand Coulee hits 1,000,000 kw (picture feature) *353
How to press-fit a large rotor on its shaft. N. L. Rea *335
Hydraulic turbines improved by extra valve. Edward Uehling *495
Hydro advances in U. S. and Canada with over 7,000,000 hp on order (charts) 635
Hydro, diesel and steam, in unique combination, serve Salt River Valley *354
Hydroelectric projects built or on order in the U. S. and Canada in 1947 (table) 638
Hydroelectric projects constructed and operated by government agencies (table) 637
Location and capacity of government hydro projects (map) 636
1948 modern plant survey 583
Slave Falls plant is completed *783
Tacoma, Wash. redevelops old hydro project on Nisqually River by installing 90,000 kw more capacity *268
U. S. Bureau of Reclamation schedules construction 658a
Waterwheels operate 100 years. George Willock *165

WATER TREATMENT

Burn sulphur instead of using sulphuric acid when treating cooling-tower water. K. M. White *175
Demineralization process *314

WELDING

Harbor Steam Plant, Los Angeles, saves a million dollars a year by welding. C. N. Barlow *459
Harbor Steam Plant of City of Los Angeles saves pump casings by welding. Carl Barlow *340
Wire Rope—How to choose the proper wire-rope construction. W. I. Lex *467

(*) Illustrated. (Ed.) Editorial.

AUTHOR'S INDEX

ABRAHAMSON, L. M. New one-boiler-per-turbine unit increases system capacity by 20%. *330
Akins, G. F. Work model simplifies theory of automatic control. pt 1 *536 pt 2 *694.
Anderson, James J. Can I turn down a squirrel-cage rotor? 177.
Annett, F. A. Electronics for the power engineer pt 1 *239 pt 2 303 pt 3 *361 pt 4 429 pt 5 493 pt 6 *554 pt 7 *709 pt 8 *791. Industrial-power clutches. *83. Transformers and lamps. 560
Applegate, O. L. Preventive maintenance requires firm scheduling. *674.
Appleton, A. T. Way to remove ash siftings. 366.
Avant, Geo. C. Trouble with steam pump. 644

BACHMANN, Carl. Why does one cooling tower take more air? 122a.
Barlow, Carl N. Welding saves million dollars a year at Harbor Steam Plant. *459. Welding saves costly pump casings *340.
Belton, Arthur. Heat-saver system. *715. How to stop pound in a Corliss engine. 446a. Saving steam from curing cylinders. 320b. Stopping belt slippage on flywheel. 47. Troubles with steam pump. 645. Way to remove siftings. 378a. Why does one cooling tower take more aid? 122b.
Bixler, D. F. Recirculating cooling system improves engine operation. *794.
Blake, J. W. & R. W. Tumy. 3500-kw gas turbine raises station capability by 600-kw. *518.
Bloedorn, C. W. High fuel costs revive reheating *485.
Bloomquist, W. C. Improve the load power factor. *719.
Bostwick, T. W., J. A. Cassidey & J. P. Hancock. How Talleyrand's condenser operating experience varied over the years. *685.
Brainard, D. E. Figuring triangles. 375.
Brenton, D. J. Shock absorber smooths governor operation. *558
Brown, John R. Here's a procedure for expanding boiler tubes. *712. Proper expansion loop eliminates steam leaks. *557.
Bryan, H. H. Frequency of elevator rope resocketing. 797.
Butcher, Ira A. Calculating slipring-motor resistance. 244. Checking for phase reversal. 560. Saving steam from curing cylinders. 321a. Stopping belt slippage on flywheel. 58b. Troubles with steam pump. 645. Underground waterproof concrete tank. 498. Way to remove siftings. 367.
Butler, Frank A. Troubles with steam pump. 657c.

CALABRESE, GIUSEPPE. Probability theory helps determine system reserve generating capacity. *423.
Carbonnier, H. Y., J. D. Yoder & A. H. Morris. Removal of silica in a sludge-blanket hot-process softener. *399.
Cassidey, J. A., T. W. Bostwick & J. P. Hancock. How Talleyrand's condenser operating experience varied over the years. *685.
Clark, R. S. Service. 700.
Cline, W. M. Jr. How gas engines serve today's steel mills. *38. Steel-mill boilers designed for blast-furnace gas. *350.
Coe, F. E. Wooden sticks serve as an expendable clutch. 242.
Colborn, Robert. Power reports—where America stands in 1948. *264.
Combs, R. F. Careful planning pays big dividends in payout of laundry boiler plant. *452.
Connors, N. J. Make your furnace-design specifications work for you. *300.
Constance, J. D. Fit the air-conditioning system to the load. pt 1 *18 pt 2 *72. Read tank-water level from pressure gage. *495. Troubles with steam pump. 645. Underground waterproof concrete tank. 498.
Coulden, J. A. Calculating slipring-motor resistance. 245. Can I turn down a squirrel-cage rotor? 189c.
Cunningham, T. F. Underground waterproof concrete tank. 510a.

DEMERE, C. Checking for phase reversal. 560. Underground waterproof concrete tank. 510a.
Demling, Henry H. Saving steam from curing cylinders. 320c. Why does one cooling tower take more air? 122b.
Dovenar, Paul. Troubles with steam pump. 658c.
Drake, J. H. Consider the operator's viewpoint when designing generating stations. *102.

EASTCOTT, A. R. Simple tools repair pedestal cracks, *153. Ten years' experience burning lignite and discarded slack coal. *276.
Elliott, G. O. Stopping belt slippage on flywheel. 58a.

FLADBY, E. L. Calculating slipring-motor resistance. 255b.
Fontaine, R. E. Saving steam from curing cylinders. 308.
Formby, N. Revolution counter meters the compressor air outfit. *643.
Freck, S. G. Automatic electrical-fire protection. *477.
Fusner, George R. Installing waste-heat boiler increases gas-turbine flexibility. *421.

GIBSON, G. E. Burns bug-dust lignite at efficiencies to 79%. *550.
Gilg, F. X. Save stress on boiler drums by planned operation. *474.
Giordano, Felix M. Engine indicated horsepower. *117. Piping collars have several advantages. *111. Way to remove siftings. 367.
Gowan, W. L. Heat-saver system. 715. How to stop pound in a Corliss engine. 439. Stopping belt slippage on flywheel. *46. Way to remove siftings. 367. Why does one cooling tower take more air? 112.
Graham, John A. Saving steam from curing cylinders. 308.
Greiner, H. J. Stopping belt slippage on flywheel. 58a.
Griffel, George. Stopping belt slippage on flywheel. *47. Troubles with steam pump. 645.
Gusler, Denard L. Automatic switch controls alarm circuit. *642.

HAHN, EUGENE. Tips for pneumatic ash conveying. *352.
Hancock, J. P., T. W. Bostwick & J. A. Cassidey. How Talleyrand's condenser operating experience varied over the years. *685.
Hansen, Alf. Establish adequate maintenance program for industrial turbines. *26.
Haworth, F. R. Troubles with steam pump. 658c.
Helmer, N. A. Jr. How to stop pound in a Corliss engine. 439. Trouble with steam pump. 644.
Hicks, Tyler G. Calculating slipring-motor resistance. 254c. Can I turn down a squirrel-cage rotor? 177. Electropneumatic system clears coal jamming. *713. Frequency of elevator rope resocketing. *796. Heat saver system. 715. How to draw fan scrolls on layouts quickly. *643. How to stop pound in a Corliss engine. 438. Saving steam from curing cylinders. 321b. Stoping belt slippage on flywheel. 47. Troubles with steam pump. 645. Underground waterproof concrete tank. 498. Way to remove siftings. 367. Why does one cooling tower take more air? 113.
Hoffman, H. C. Central refrigeration handles load. *393.
Hoffman, K. B. Calculating slipring-motor resistance. 245. Can I turn down a squirrel-cage rotor? 177. Checking for phase reversal. 560. Crimp lugs speed transformer repair. *541. Saving steam from curing cylinders. 309.
Holman, George. Calculating slipring-motor resistance. 255c. How to spot refrigerating troubles. *492. Stopping belt slippage on flywheel. 58c. Troubles with steam pump. 645. Why does one cooling tower take more air? 122c.
Holubeck, G. Thermocouples detect high ash level in closed precipitator hopper. *243.
Hornbeck, D. E. Fluorescent dye detects small leaks quickly. 174.
Hutchins, Brahna C. Carbon tetrachloride ok in proper extinguisher. 375.
Hyam, John F. Calculate continuous blowdown rate from chloride concentrations. *567. Feedwater chemistry conversions. *313. Figuring refrigeration capacity. *51. Synchronous speeds of electrical machines. *183. Total raw-water hardness from ionic analysis. *371. Water conditioning with sodium sulphite. *801.

JONES. E. E. Checking for phase reversal. 559.
Jones, H. L. Oiling condensers prevent corrosion. 713.
Jubin, Marshall A. Clock-controlled valves drain compressed-air system. *110.

KAGAN, WILLIAM. How to partch tracing paper. *175.
Kearns, James A. New boiler-plant design features reliability and simple operation. *4.
Kelley, E. J. Calculating slipring-motor resistance. 255a. Ground halts generator phase test. *699. Parallel operation of ac generators. *465.
Ketterson, Frank A. Skillful planning licks problems of air-conditioning installation. *140.
Kilbourn, W. R. How to stop pound in a Corliss engine. 445b.
Kilcer, Joseph P. Troubles with steam pump. 645.
Kilduff, C. J., J. N. Welsh & H. M. Rivers. Internal conditions of old boilers guide water treatment for new units. *542.
King, John L. Water rheostat loads generators for testing. *110.
Kinsinger, M. H. Motor and pump repairs go hand in hand. *238.
Kohl, F. S. When to use steam turbines for mechanical drive. pt 1 *338 pt 2 *427 pt 3 *706
Korn, Arthur H. How to determine reliable air-flow data for design of duct systems. *30.
Kraus, Milton N. Calculating slipring-motor resistance. 254b. Heat-saver system. 714. How to stop pound in a Corliss engine. 445b. Underground waterproof concrete tank. *498.

LARSON, W. L. Rebuilding blades salvages old steam turbine. *364.
Lea, Albert. Series orifices reduce pipe erosion. *174.
Lewis, Guy & M. A. Nichkian. Power services meet the fleet halfway. *488.
Lex, W. I. How to choose the proper wire-rope construction. *467.
Lilienthal, David. The strength of America. *1
Livingston, Howard T. Troubles with steam pump. 657c. Underground waterproof concrete tank. 497. Why does one cooling tower take more air? *113.
London, W. P. Feedwater treatment removes troublesome coloring matter. *480. Steam plant modernized with eye toward future expansion. *388.
Lynn, C. Turbine-generator exciter keep pace with increased operation. *8.

MAHER, JAMES F. Puller bars safely remove pistons and heads. *794.
Martinez, S. Jr. Card file keeps track of equipment maintenance. *558.
McArthur, R. D. & G. H. Suhs. Rebuilt steam turbines modernize this twenty-year old paper plant. *75.
McCabe, J. C. & L. N. Rowley. Cut smoke by proper jet application. *676. How overfire jets can be made to cut smoke. *532. Proper hand firing makes no smoke. *456. Underfeed stokers are meant to operate smokefree. *284. Want your overfeed stoker to be smokefree? *158. What part does pulverized coal firing play in air pollution? *14.
McCabe, J. C., L. N. Rowley & B. A. Skrotzki Fuels and firing. *735.
McClammy, Herbert. One of South's largest municipal utilities plans 60,000-kw station. *288.
McFarland, G. L. Liquid rheostat gives smooth speed control. *280.
McKay, Donald H. Shock absorber reduces maintenance. *111.
Melville, W. How to stop pound in a Corliss engine. 445c.
Merwin, R. F. Let magnetic separators remove tramp iron. *168.
Milbrook, A. T. & D. A. Monro. Topping stretches refinery steam pt 1. *154; pt 2. *254.
Miller, T. E. Edge strips on clip board aid drawing. *307.
Monro, D. A. Refinery power expansion. 378c.
Monro, D. A. & A. T. Milbrook. Topping stretches refinery steam pt 1. *154; pt 2. *254.
Moore, M. G. How to do milling work with a lathe. *307.
Morris, A. H., J. D. Yoder & H. Y. Carbonnier. Removal of silica in a sludge-blanket hot-process softener. *399.
Mullen, Thomas Y. High-pressure boilers serve new condensing and topping turbines. *670.
Mullen, William T. Saving steam from curing cylinder. 308.
Mumford, W. C. Vertical turbine pumps pt 1. *41; pt 2. *108; pt 3. *171.
Murphy, John B. Compression rings extend steam-piston life. *306. How to stop pound in a Corliss engine. *439.
Myers, F. W. & A. R. Pettit. Use of house turbines marks design of Philadelphia's Southwark Station. *134.

NARDONE, PIO. Suction submergency controls condensate-pump discharge. *680.
Neumann, G. W. Electronic control for d.c. motors. *703.
Newman, L. E. Standardization of industrial steam turbines is coming. *143.
Nishkian, M. A. & Guy Lewis. Power services meet the fleet halfway. *488.
Norman, Earl E. Can I turn down a squirrel-cage rotor? 177.
Nunley, L. L. Guymon Station takes on load. *483.

O'BRIEN, E. Troubles with steam pump. 643.
O'Connor, J. J. Circuit protection. *403.
Oldroyd, G. Power-factor calculations made easy. *167.
Oman, Henry. Ward-Leonard system assures exact speed control for dc motors. *546.
Oppenheim, Irving. Way to remove siftings. 378b.

PAFENBACH, MAX. Inductive kick checks motor compounding. *433.
Page, S. C. Troubles with steam pump. 658c.

(*) Illustrated. (Ed.) Editorial.

Panning, Harry. Automttic feeding of woodwaste replaces hand firing, saves fuel. *396.
Parmer, D. J. Frequency of elevator rope resocketing. 807b. Troubles with steam pump. 645.
Pearce, M. H. Four tanks make effective gas drier. *306. Line chafing sleeve prevents scoring. *45. Sheet-metal housing protects outdoor motor. *175. Valve-tap brace prevents breakage. *111.
Pettit, A. R. & F. W. Myers. Use of house turbines marks design of Philadelphia's Southwark Station. *134.
Podmayer, E. Clean out nipples without shutting down the main. *495.
Porter, J. C. Automatic alarm board helps busy operators. *242. Saving steam from curing cylinders. 321b. Underground waterproof concrete tank. 498.
Putz, T. J. 1330-F 2000-hp gas turbine runs on test stand for over 1000 hours. *150.

RANDALL, H. J. London plans frst oil-fired central station in Britain. *789.
Ray, Cloyd J. Troubles with steam pump. 645.
Rea, N. L. Here's how to press-fit a large rotor on its shaft. *335. A little heat eases press-fit rotors on their shafts. *682.
Rewalt, John K. Apply right gear to the job to get longer service. *344.
Reynolds, T. W. Department stores require flexible air conditioning. *526.
Richardson, H. How to figure unburned carbon. *651.
Rivers, H. M., J. M. Welsh & C. J. Kilduff. Internal conditions of old boilers guide water treatment for new units. *542.
Roberts, E. A. Can I turn down a squirrel-cage rotor? 189c. Checking for phase reversal. 560. Emergency pump repair uses concrete. *643.
Rosebrough, J. D. 3600-rpm fluid drives adjust feed-pump speed to boiler load. *12.
Rowley, L. N. Modern diesel engines. *199.
Rowley, L. N. & J. C. McCabe. Cut smoke by proper jet application. *676. How overfire jets can be made to cut smoke. *532. Proper hand firing makes no smoke. *456. Underfeed stokers are meant to operate smoke-free. *284. Want your overfeed stoker to be smokefree? *158. What part does pulverized coal firing play in air pollution? *14.
Rowley, L. N., J. C. McCabe & B. C. A. Skrotzki. Fuels and firing. *735.
Ruff, A. W. Freezing-room floors need heat. *291.
Rumble, Frank H. How to select the most economical V-belt drive. *787.

ST. LAURENT, ALFRED. Can I turn down a squirrel-cage rotor? 176.
Schaeffer, Charles A. Why does one cooling tower take more air? 113.
Schmidhauer, Hans. Shortcut to making pipe elbow developments. *496.
Sims, J. Bryan. Extension ups Grand Haven diesel plant to 13,370 hp. *462.
Skooglund, A. C. How to avoid costly shutdowns through correct lubrication. *105.
Skrotzki, B. G. A., J. C. McCabe & L. N. Rowley. Fuels and firing. *735.
Smith, Dexter M. Log sheets enable quick record keeping. *243.
Sparks, J. Checking for phase reversal. 559.
Spencer, R. O. Frequency of elevator rope resocketing. *797.
Squires, J. H. Stopping belt slippage on flywheel. 47.
Steinberg, M. J. District steam supply makes byproduct energy. *297.
Stepanoff, A. J. Adjustable vanes match pumps to operating requirements. *163.
Sterrett, Elton. Continuous walkway saves climbing. *433. Plan for extension in powerplant designs. *45. Sampling box simplifies testing. *713. Sediment trap improves performance of regulating and recording instruments. *795. Slip joints prevent expansion troubles. *642. Yard pipeline crossing promotes safety. *364.
Strojsa, Vincent. Troubles with steam pump. 657c. Way to remove siftings. 367.
Suhs, G. H. & R. D. McArthur. Rebuilt steam turbines modernize this twenty-year old paper plant. *75.
Summer, V. C. Frequency of elevator rope resocketing. 797.

THUMAN, JOHN B. Accumulator helps carry peak load. *432. Plug-type cap holds shaft sleeve in place. *307. Saving steam from curing cylinders. 309.
Tumy, R. W. & J. W. Blake. 3500-kw gas turbine raises station capability by 6000-kw. *518.
Turner, W. D. Charts simplify chemical dosage for treating boiler feedwater. *347.

UEHLING, EDWARD. Extra valve improves maintenance procedure. *495.
Ulmer, R. C. Rid water of dissolved gas to stop corrosion. *491. Why inorganic materials precipitate. *233.

VAN HERK, P. Checking for phase reversal. 560.
von Dannenberg, C. O. Calculating slipring-motor resistance. 255c. Can I turn down a squirrel-cage rotor? 177.

WALLENE, FRANK O. Purchased power held under control aids process plant. *688.
Warner, W. E. Can I turn down a squirrel-cage rotor? 190a.
Webb, Thomas L. B. & J. D. Yoder. Hydrogen-zeolite treated water dissolves boiler, superheater scale. *35.
Webber, E. R. Saving steam from curing cylinders. 321b.
Weisenbach, Fred W. Why does one cooling tower take more air? 112.
Welch, J. J. Bridge-like truss supports stack breeching. *364.
Welsh, J. N., H. M. Rivers & C. J. Kilduff. Internal conditions of old boilers guide water treatment for new units. *542.
Wenig, Arthur J. Saving steam from curing cylinders. 321a. Why does one cooling tower take more air? 122a.
West, W. L. Controls make hydro-pneumatic tanks. *529.
White, Dalton. Simple aspirators reduce CO_2 in makeup water. *557.
White, K. M. Burn sulphur instead of using sulphuric acid. *175. Existing tank provides needed storage. *365.
White, R. N. Muffling deaerator vent is boon to operators. *365.
White, Ralph. Troubles with steam pump. 645.
Whitlow, L. B. Air-jet motor cleans scale off boiler-tube exteriors. *712.
Wieboldt, W. H. Universal tank-capacity scales. *437.
Wijsman, D. Grooved ring stops oil leakage along shaft. *795.
Wilkes, C. A. How to stop pound in a Corliss engine. 445c
Williams, J. S. Capacitors improve pf and cut costs. *785.
Willock, George. Waterwheels operate 100 years. *165.
Wilson, A. L. Surface water made fit for boilers. *283.
Wilson, James. What the synchroscope does and how it works. *146.
Winget, R. W. Saving steam from curing cylinders. 309.
Woodman, W. C. Rotary or Steam-Jet Air Pump. *470.
Wyborn, W. A. Stopping belt slippage on flywheel. 58b.

YAVITCH, J. Saving steam from curing cylinders. 321c.
Yoder, J. D., H. Y. Carbonnier & A. H. Morris. Removal of silica in a sludge-blanket hot-process softener. *399.
Yoder, Joseph D. & T. L. B. Webb. Hydrogen-zeolite treated water dissolves boiler, superheater scale. *35.

(*) Illustrated. (Ed.) Editorial.